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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,445	08/30/2001	Toshimichi Kurihara	14872	7920

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400 GARDEN CITY PLAZA
GARDEN CITY, NY 11530

EXAMINER

BEREZNY, NEMA O

ART UNIT PAPER NUMBER

2813

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,445

Applicant(s)

KURIHARA ET AL.

Examiner

Nema O Berezny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,9,11,13,15,17,19-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) 19-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9,11,13,15,22 and 24 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8,9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9-12-03 has been entered.

Specification

The objection to the title made in prior Office Action is hereby withdrawn, subsequent to correction made by Applicant in Amendment B, filed 8-14-03.

Cancellation of claims 2, 4, 6, 8, 10, 12, 14, 16, 18, 23, and 25 in Amendment B, filed 8-14-03 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, 7, 9, 11, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Switky et al. (5,270,262) in view of Yamauchi (5,266,739). Switky discloses a semiconductor device, comprising: a lead frame conductive member (Figs.1-3C el.13); a radiating plate (el.14) formed of a metal plate different from the lead frame; a semiconductor chip (el.16) bonded onto said radiating plate (col.4 lines 44-46); a resin wall (el.12) bonded at the lower end to the radiating plate, which retains the conductive member and surrounds the circumference of said chip (Fig.2); and a lid (el.11) bonded to the upper end of said resin wall, an inner lead portion of the conductive member being mounted on a base seat part formed as a part of the resin wall (Fig.2), wherein said chip is sealed in a space blocked by said plate, said wall and said lid, and said conductive member electrically conducts the chip to the outside. However, Switky does not disclose a resin lid, or a lower end of said resin wall bonded to a side and an end face of said plate in one area and said resin wall bonded to only said side of said plate in another area.

Yamauchi discloses a resin lid (Figs.1-5 el.16), wherein the lower end of a resin wall in a first area and in the vicinity thereof are bonded to one side and an end face of a radiating plate, and the lower end of said resin wall in a second area other than said first area and the vicinity thereof is bonded to only said one side of said radiating plate (Fig.4). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the resin lid and resin wall bonding of Yamauchi with the semiconductor device of Switky in order to form the walls and lid in the same step using the same material, and thereby saving time and money.

Switky also discloses a resin wall that fits to protruding and recessed parts on the radiating plate (Fig.2), wherein the recessed parts are on opposing sides of the radiating plate, and the protruding parts are on the inner surfaces of the recessed parts, and the lower end part of the resin wall is buried in the recessed parts (Fig.3B). Switky also discloses first holes in the outside positions of the resin wall on the conductive member, and second holes in the region extending through the resin wall of the conductive member (Figs.8,9; col.7 lines 19-34), wherein the first holes overlap the space area between the second holes (Figs.8,9). Switky also discloses a stepped part on the lid which is to be fitted to the inner periphery of the resin wall (Fig.2), and a lid that has a vertically plane symmetric shape (Fig.2).

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Switky in view of Yamauchi as applied to claim 1 above, and further in view of James (6,396,133). Switky in view of Yamauchi do not disclose a radiating plate that has end portions formed integrally at both ends of a center portion of the radiating plate, the lower end of the resin wall bonded to said center portion, and said end portions exposed through the resin wall. However, James discloses a radiating plate that has end portions formed integrally at both ends of a center portion of the radiating plate, the lower end of the resin wall bonded to said center portion, and said end portions exposed through the resin wall (Figs.3-5 el.44). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the radiating plate of James with the

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semiconductor device of Switky and Yamauchi. A radiating plate that is exposed outside of the resin wall would radiate more heat away from the device.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Switky in view of Yamauchi as applied to claim 1 above, and further in view of ElHatem et al. (5,739,582). Switky in view of Yamauchi do not disclose a conductive member that is broader on the inside of the resin wall. However, ElHatem discloses conductive lead members that are broader on the inner lead portions, which would be located inside of the resin wall (Fig.2). Therefore, it would have been obvious to a person skilled in the art at the time of the invention to use the broad inner leads of ElHatem with the semiconductor device of Switky and Yamauchi. A broader inner lead would result in a shorter bonding wire since said wire could be attached to the nearest point on the broad inner lead.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter for claim 17. The prior art of record does not teach or disclose a radiating plate that comprises a silver plated surface finish that adjoins the resin wall, and a gold plated surface finish elsewhere on the radiating plate, as well as gold plated conductive members, in addition to the elements of claim 1.

Ellenberger et al. (4,925,024) discloses gold plated leads of a lead frame only (col.3 lines 54-63). Otsuki et al. (5,653,891) discloses a heat sink that is silver plated everywhere, except where it is adjoined to a resin surface (col.12 lines 35-51).

Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 22, and 24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nema O Berezny whose telephone number is (703) 305-3445. The examiner can normally be reached on M-F 8:30-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on (703) 308-4940. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

NB



JACK CHEN
PRIMARY EXAMINER